AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): An optical apparatus comprising:

a container filled with a gas containing hydrogen;

an optical element of silica glass, accommodated in said container;

a light source emitting coherent light; ~~and~~

~~an inlet and an outlet provided on said container so as to allow the gas containing hydrogen to be continuously supplied into said container,~~

wherein the hydrogen has a partial pressure of 0.01 to 500 kgf/cm^2, ~~and~~

wherein said optical element and said light source are aligned so that the coherent light emitted from said light source is incident upon said optical element,

wherein said optical element is subjected to a heat treatment in a hydrogen atmosphere before being accommodated in said container,

wherein the pressure in the hydrogen atmosphere during heat treatment is set in a range from 1 to 500 kgf/cm^2,

wherein the temperature in the hydrogen atmosphere is set in a range from 80 to 500°C, and

wherein said light source is selected from the group consisting of a KrF excimer laser light source and an ArF excimer laser light source.

2. – 3. (canceled).

4. (original): An optical apparatus according to claim 1, wherein the hydrogen concentration of the gas containing hydrogen is set to be less than 4% by volume.

5. (original): An optical apparatus according to claim 1, wherein said container further comprises a valve, said valve being of a construction for connection to an external element to supply at least hydrogen from the external element into said container.

6. (original): An optical apparatus according to claim 5, wherein said valve is selected from the group consisting of a check valve and a shut-off valve.

7. (original): An optical apparatus according to claim 1, wherein said container further comprises at least an inlet and at least an outlet, wherein the gas containing hydrogen flows through said container from said at least an inlet to said at least an outlet.

8. (original): An optical apparatus according to claim 1, wherein the gas containing hydrogen is pure hydrogen.

9. (original): An optical apparatus according to claim 1, wherein the optical element includes at least one of a lens, an optical fiber, a mirror, a prism, an optical filter, and a reticle.

10. (canceled)

11. (currently amended): An optical apparatus comprising:

a container filled with a gas containing hydrogen, said container having a first light transmission window on which ultraviolet light emitted from a light source selected from the group consisting of a KrF excimer laser light source and an ArF excimer laser light source is incident; and

an optical element of silica glass accommodated in said container;

wherein the hydrogen has a partial pressure of 0.01 to 500 kgf/cm^2,

wherein said optical element is aligned to receive said ultraviolet light incident upon said first light transmission window, ~~and~~

~~wherein a hydrogen concentration of the gas containing hydrogen is set to be less than 4% by volume~~

wherein said optical element is subjected to a heat treatment in a hydrogen atmosphere before being accommodated in said container, and

wherein the pressure in the hydrogen atmosphere during heat treatment is set in a range from 1 to 500 kgf/cm^2, and the temperature in the hydrogen atmosphere is set in a range from 80 to 500°C.

12. - 14. (canceled)

15. (original): An optical apparatus according to claim 11, wherein said container further comprises a valve, said valve being of a construction for connection to an external element to supply at least hydrogen from the external element into said container.

16. (original): An optical apparatus according to claim 15, wherein said valve is selected from the group consisting of a check valve and a shut-off valve.

17. (original): An optical apparatus according to claim 11, wherein said container further comprises at least an inlet and at least an outlet, wherein the gas containing hydrogen flows through said container from said at least an inlet to said at least an outlet.

18. (original): An optical apparatus according to claim 11, wherein the gas containing hydrogen is pure hydrogen.

19. (original): An optical apparatus according to claim 11, wherein said light transmission window is a lens.

20. (original): An optical apparatus according to claim 11, wherein the optical element includes at least one of a lens, an optical fiber, a mirror, a prism, an optical filter, and a reticle.

21. (currently amended): An optical apparatus according to claim 11, said container further comprising a second light transmission window, arranged to transmit ~~the~~ said ultraviolet light incident upon said first transmission window after said ultraviolet light is reflected by, or transmitted through, said optical element.

22. (withdrawn): A method of irradiating an optical element with ultraviolet light while protecting the optical element from radiation-induced defects, comprising steps of:

heat treating the optical element comprising silica glass in a hydrogen atmosphere;

accommodating the optical element in a container after heat treatment;

filling the container with a gas containing hydrogen after accommodating the optical element;

setting the partial pressure of the hydrogen in the filled container to be in a range of 0.01 to 500 kgf/cm^2; and

irradiating the optical element in the filled container with ultraviolet light.

23. (withdrawn): A method according to claim 22, wherein said step of heat treating includes contemporary steps of:

setting a pressure of the hydrogen atmosphere to be 1 to 500 kgf/cm^2;

setting a temperature of the hydrogen atmosphere to be 80 to 500 C.

24. (withdrawn): A method according to claim 22, further comprising a step of:

flowing the gas containing hydrogen through the container, after the step of filling the container, while maintaining the hydrogen at the partial pressure of 0.01 to 500 kgf/cm^2.

25. (withdrawn): A method according to claim 22, further comprising a step of: sealing the container after the step of filling the container.

26. (withdrawn): A method according to claim 22, further comprising a step of: setting the concentration of the hydrogen filling the container to be less than 4% by volume.

27. (previously presented): An optical apparatus according to claim 1, wherein the partial pressure of hydrogen is set in a range from 300 to 500 kgf/cm^2.

28. (previously presented): An optical apparatus according to claim 11, wherein the partial pressure of hydrogen is set in a range from 300 to 500 kgf/cm^2.